

TOWER SEMICONDUCTOR LTD  
Form 424B2  
May 19, 2010

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Prospectus Supplement No. 5  
(to Prospectus Supplement No. 4 dated April 23, 2010,  
and Prospectus dated December 28, 2009)

Filed pursuant to Rule 424(b)(2)  
Registration Statement No. 333-163196

TOWER SEMICONDUCTOR LTD.

5,616,890 Ordinary Shares

Pursuant to this prospectus supplement, the accompanying Prospectus Supplement No. 4 and the accompanying base prospectus, we are offering 5,512,055 ordinary shares to YA Global Master SPV Ltd., or YA Global, for a total consideration of \$8,000,000, pursuant to an advance made to us by YA Global under our previously announced Standby Equity Purchase Agreement, or SEPA, dated August 11, 2009, as amended on August 27, 2009, February 4, 2010 and April 22, 2010, with YA Global. This prospectus supplement also covers the issuance of 104,835 ordinary shares to YA Global in payment of \$150,000 of the commitment fee payable to YA Global under the SEPA. We expect to issue the shares to YA Global against payment therefor and in satisfaction of the commitment fee on or about May 20, 2010.

In addition to our issuance of ordinary shares to YA Global pursuant to the SEPA, this prospectus supplement, the accompanying Prospectus Supplement No. 4 and the accompanying base prospectus also cover the resale of those shares by YA Global to the public. YA Global may be deemed to be an “underwriter” within the meaning of the Securities Act of 1933, as amended.

Our ordinary shares are quoted on the NASDAQ Global Market and the Tel-Aviv Stock Exchange under the symbol “TSEM.” On May 17, 2010, the last reported sales prices of our ordinary shares on the NASDAQ Global Market and the Tel-Aviv Stock Exchange were \$1.45 per share and NIS 5.65 per share, respectively.

The shares are being issued as part of the commitment by YA Global to purchase from time to time, at our option, our ordinary shares pursuant to the SEPA. After giving effect to the issuance of the shares and payment therefor as described in this prospectus supplement a maximum of \$27,049,185 is available for future advances under the SEPA.

Investing in our securities involves a high degree of risk. See “Risk Factors” referred to and included beginning on page S-2 of the accompanying Prospectus Supplement No. 4.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying base prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is May 19, 2010

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THE OFFERING

Securities offered	5,616,890 ordinary shares of Tower Semiconductor Ltd.
Purchaser	YA Global Master SPV Ltd., pursuant to the Standby Equity Purchase Agreement dated August 11, 2009 and amended on August 27, 2009, February 4, 2010 and April 22, 2010.
Purchase price; other consideration	\$8,000,000; \$150,000 in payment of commitment fee.
Settlement date	On or about May 20, 2010.
Use of proceeds	We intend to use the net proceeds from this offering for working capital and other general corporate purposes. See "Use of Proceeds" in the accompanying Prospectus Supplement No. 4.
Symbol for Ordinary Shares on Nasdaq Global Market and Tel-Aviv Stock Exchange	TSEM
Resale	This prospectus supplement, the accompanying Prospectus Supplement No. 4 and the accompanying base prospectus also cover the resale of the ordinary shares by YA Global to the public. See "Plan of Distribution" in the accompanying Prospectus Supplement No. 4.

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